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ABSTRACT

American business is caught in a painful paradox because, although there are many applicants for jobs, few have the skills employers require. The mismatch between skills required and skills available generates huge costs for industry. Some are clearly related to school-system underperformance, but others are less obviously related to lax educational standards. Corporate taxes support a range of public sector costs, which include educational remediation and other costs of school failure. Setting educational standards calibrated to the workplace is a first step toward ending this inefficiency. Standards-driven reform is the best way to equip students for the opportunities offered by the new economy. The principal beneficiaries of higher academic standards would be young people themselves as they become equipped to compete for better jobs, but companies would also benefit. Effective reform requires moving from a minimum competency mindset to one that demands high achievement. Business leaders can help by speaking frankly about the gap between company needs and student preparation. (SLD)

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Standards Mean Business

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The National Alliance of Business is a business-led, nonprofit organization dedicated to building a competitive American workforce by enhancing the skills and knowledge of workers to meet the needs of business. Today, the key to American business competitiveness lies in a quality workforce — where every citizen is educated and trained to world-class standards, beginning in the classroom and continuing in the workplace. The Alliance works to ensure that business needs drive changes in our nation's education and training agendas, and that businesses have the resources they need to make improvements in their own workforces.

Nelson Smith is a Washington-based author and consultant specializing in strengthening ties between business and education, particularly urban school systems. He was formerly Vice President for Education and Workforce Development at the New York City Partnership.

The author wishes to thank the staff and members of the National Alliance of Business for their generous assistance in preparing this paper, with special thanks to Kenneth P. Voytek, NAB's Chief Economist and Director of Economic Research, whose knowledge, expertise, and judgment have been of invaluable help.

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UNUM Corporation
2211 Congress Street
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UNUM

Dear Colleague:

As business leaders, we know the key to staying competitive in today's global economy is investing in the education and training of our current and future workers. The first step in improving the quality of the American workforce is to improve our nation's public schools and increase student achievement.

Business believes that the single most important thing our nation can do to improve education is to develop clear academic standards set at world class levels for all students. That's why the National Alliance of Business, with generous support from IBM Corporation, has prepared *Standards Mean Business*. This publication, originally prepared for the nation's governors and business leaders attending the 1996 National Education Summit, makes a compelling case for why we need academic standards.

The business community firmly believes that the larger education reform movement will fail if we continue to have one set of expectations for young people headed for college and another for those entering the workforce immediately after high school. It is clear that our nation's schools must produce, in all graduates, levels of skill and competence once not expected even of the select few destined for higher education. Today, high school graduates who are entering the world of work must be as well-educated as those headed for college.

As Chairman of the National Alliance of Business, I am pleased to play a part in supporting the standards-setting process. I hope you will use the information provided in this publication to promote the academic standards movement in your community.

Sincerely,

James F. Orr III
Chairman and CEO, UNUM Corporation
Chairman, National Alliance of Business

NATIONAL ALLIANCE OF BUSINESS

Dear Colleague:

Business is the major direct customer of schools, since we employ their graduates. But business is also an important part of the community at large, and my colleagues are increasingly concerned about the ability of young people to thrive as part of that community — to undertake their responsibilities as parents and citizens as well as workers.

In our new publication, *Standards Mean Business*, we argue that stronger academic standards are the key to ensuring that every student gains the knowledge and skills needed for responsible citizenship and productive work. It is becoming increasingly clear that too many of today's graduates are falling behind the demands of the changing workplace. And far too many lack even basic skills.

Business involvement is crucial. What business can contribute to education reform is clarity about the knowledge and skills demanded at work. The knowledge content of work is increasing. In an age when a technician's job may depend on understanding complex scientific principles and require solid computer skills, schools must do a better job of teaching those competencies. Business needs to work with policymakers so they understand these needs and to provide managerial expertise to school systems in their revitalization process.

The National Alliance of Business has worked for nearly thirty years to ensure that young people have plentiful opportunities. In the next few years, we'll be working with governors and other business organizations to see that the new education standards being proposed reflect the skills needed by employers. I hope you will use the information in this publication to become involved in school improvement efforts in your own community.

Sincerely,

Roberts T. Jones
President and CEO
National Alliance of Business

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NATIONAL
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Standards Mean Business

by Nelson Smith

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Foreword

The evolution of the education reform movement in the U.S. is marked by three milestones.

In 1983, the National Commission on Excellence in Education, for which I served as Executive Director, issued the landmark report, *A Nation At Risk*. In it, we called for a renewed public commitment to excellence in American education for all students. We said that in a "world of ever-accelerating competition and change," and of "ever-larger opportunities", high expectations for learning were indispensable. Young and old alike who did not possess necessary skills and literacy levels would lose out on the rewards of full civic participation and material success.

In 1989, President George Bush convened the nation's governors in Charlottesville, Virginia for the first Education Summit. At this precedent-shattering event, the nation's political leaders committed themselves to six ambitious national education goals.

In 1996, Louis V. Gerstner, chairman and CEO of IBM, and Tommy Thompson, Governor of Wisconsin, hosted a National Education Summit for the nation's governors as well as our country's top CEOs. At this landmark event, President Bill Clinton, who led the governors at the Charlottesville Summit, addressed the participants as they reaffirmed their commitment to world-class academic standards for all our students.

As a leader in promoting business involvement in education reform, the National Alliance of Business was asked to prepare this discussion paper for the 1996 National Education Summit. Its goal was not only to explain the cost to society of low academic standards, but also to lay out a vision of high academic achievement for all students. *Standards Mean Business* has already received wide-spread attention and we hope it proves helpful to you and your colleagues in your own education improvement efforts.

The author, Nelson Smith, has himself been an activist on many fronts as education reform has moved to the top of our nation's priority list. I commend him and our many business associates who contributed to the substance of this important paper.

—Dr. Milton Goldberg
Senior Vice President for Education
National Alliance of Business

Executive Summary

American business is caught in a painful paradox. When job openings are announced, applicants line up by the hundreds. Yet managers say they can't find people to fill jobs. The problem is a widening gap between worker skills and employer needs. Growth and productivity may be stalling because companies cannot find employees with adequate skills and knowledge.

The mismatch between skills required and skills available generates huge costs for industry. Some, like the cost of remedial training in basic skills, are clearly related to school-system underperformance. Others are less obvious, but also result from lax educational standards: the cost of extensive testing and screening needed to identify qualified job applicants, fees paid to temporary agencies, and overtime costs generated by high turnover.

Corporate taxes also support a range of public-sector costs, not only for K-12 education, but for college-level remediation, welfare, incarceration, and other consequences of school failure. While large corporations seem able to absorb these costs, small businesses often cannot.

Setting educational standards calibrated to workplace needs is the first step toward ending this inefficiency. American business has experienced a quality revolution driven by international standards, while schools have remained isolated from the demands of the world economy. Standards-driven reform is the best way to equip students for the opportunities offered by the new economy.

The principal beneficiencies of higher academic standards would be young people themselves, as they become equipped to compete for high-skill, high-wage jobs. But companies would also benefit, since a higher-skilled workforce would enable them to adopt high-performance work strategies and increase productivity. In the long run, stronger educational standards would generate a larger domestic market as higher skills increase workers' wages and buying power.

Effective reform requires moving from a "minimum competency" mindset to one which demands high achievement in a range of academic disciplines around a core of solid basic skills. A standards-driven reform agenda should include content and performance standards, alignment of school processes with the standards, assessments that measure student achievement against world-class levels of excellence, information about student and school performance, and accountability for results.

Business leaders can help by speaking frankly about the gap between company needs and student preparation, doing an audit of the costs incurred by lax standards, ensuring that education is viewed as an investment in human capital requiring the attention of top executives, using the firm's leverage (including hiring and philanthropic decisions) to spur reform, acquainting educators with workplace realities, and encouraging their colleagues to get directly involved in creating world-class academic standards.

I. The Paradox

American business is caught in a painful paradox. When openings are announced, applicants line up by the hundreds. Yet managers say they can't find people to fill jobs.

What the employers mean is they can't find people with the right skills — people who can read technical manuals, solve customer problems, handle a spreadsheet, and think on their feet. Even when the line of applicants stretches around the block, only a few may be able to handle such assignments.

Yet often enough, that same line may contain scores of young people who did pretty well in school — and in their pain and disappointment lies a powerful lesson: Our education system is expecting too little of its graduates, teaching coursework unrelated to the requirements of employers, and failing to cultivate the personal qualities and habits of mind demanded in today's workplace.

The mismatch between worker skills and employer needs is affecting every sector of our economy:

- One-third of corporate economists surveyed in 1995 said that their firms were encountering problems in finding skilled labor.[1]

- A survey of 919 small and mid-sized businesses by Arthur Andersen & Co.'s Enterprise Group found 25 percent worried that a lack of qualified workers will hamper their growth, nearly doubling from 13 percent in 1993.[2]

- According to the Wall Street Journal, "[t]housands of people are being turned down for factory work by companies that are actively recruiting," since applicants lack the advanced math, communications skills, and computer proficiencies required in today's manufacturing sector.[3]

- The Olsten Corp., a temporary-help firm, found that understaffing is a problem at 54 percent of the North American firms it surveyed, up from 46 percent last year, causing "higher stress, missed deadlines, and higher turnover." Olsten says the problem is compounded by increasing shortages of skilled workers, especially in the insurance, health, finance, and high-tech sectors.[4]

This growing friction between employer needs and employee preparation generates huge costs for American industry. Yet the price tag may be labeled "taxes," "relocation," or "training," obscuring the role played by lax educational standards. Costs can be saved, and productivity boosted, by helping schools to set and attain clear, measurable standards for student learning that are realistically calibrated to workplace needs.

Two Different Worlds

Why does the business community see educational standards as the cornerstone of reform? Recent corporate history shows the power of setting ambitious goals and transforming systems around them.

It was not so long ago that American firms lagged in world markets. Critics spoke of inevitable decline and permanently sluggish performance. Yet a revolution has occurred, as American companies have focused on results, benchmarked their performance against the best in the world, and aligned work processes with their objectives. Aiming at high quality has produced astonishing payoffs; one Commerce Department study found that the stocks of companies winning the 1988-1993 Malcolm Baldrige National Quality Awards outperformed the Standard & Poor's 500 average by 6.5 to one, and the parent companies of division-level award winners in the same period outperformed the S&P by three to one.[1]

The quality turnaround didn't happen in a vacuum. It was driven by fierce international competition, and sustained by an information-rich global marketplace that sends clear signals about what sells and what doesn't. To stay ahead of the curve, companies have adopted comprehensive quality standards such as ISO-9000 for their production processes, often requiring suppliers to meet the same standards. The result: a demand for excellence stretching from plant to customer, and a renaissance in American competitiveness.

Schools, however, are not yet operating in such a dynamic environment. Protected from competition, isolated from the real-world economy, our schools have struggled to keep pace as the world around them has accelerated. While college admissions have defined what's expected of the college-bound, standards for the rest — for the majority — have grown indistinct. Lacking clear goals, school systems have been unable to build coherent organizations that embrace innovation and technology. While attempting to solve

social problems and respond to pedagogical trends, they've graduated students unprepared for the complexity of the modern workplace. And in far too many cases, schools without real academic standards have failed in their most fundamental responsibility to teach basic skills.

It's time to stop pretending that education and commerce exist on different planets. The quality revolution that has swept through businesses worldwide is now poised at the schoolhouse door, demanding greater knowledge and skills from the students inside. Meeting this challenge is the key to their future and to the future economic security of our country.

But schools can't do it alone. Across America, there are dedicated teachers and principals who want to see their students seize the opportunities offered by the new economy. Employers need to let these educators know what it takes to get and keep a job in today's marketplace — then help them develop schools with rigor and imagination. And policymakers need to enact bold measures challenging the *status quo* — while providing resources that build school-system capacity to reach high standards.

The State of Maine's new education motto hits the nail on the head: "High Performance, All Students, No Exceptions, No Excuses."

What We Mean By "Standards"

Since the National Commission on Excellence in Education published *A Nation at Risk* in 1983, scores of reports and studies have sought to define what American students should know and be able to do. In 1990, The Secretary of Labor's Commission on Achieving Necessary Skills (SCANS) asked specifically what readiness for work required, and identified three **foundation skills** (basic reading, writing, and math; thinking skills; and personal qualities), plus five **workplace skills** related to technology, systems, information, interpersonal relations, and use of resources.

Prompted by the SCANS report and guided by the National Skill Standards Board, a number of industries have gone a step further, publishing skill standards that lay out in detail the academic and technical knowledge needed for peak performance in various positions. These publications speak volumes about the upskilling of front-line jobs: A Level I machinist is now expected to be able to "Develop an inspection plan and inspect simple parts using preci-

sion tools and techniques. Prepare reports on the compliance of the parts."[1] And an entry-level chemical lab technician must know how to "Develop a material and sample inventory database and schedule."[2]

Here, we concentrate on the relationship between productivity and ***academic*** standards. There are many subsets of that term — among them, *content* standards (describing what students are expected to learn), and *performance* standards (indicating how well they're expected to learn it). We use the term "standards" inclusively, to mean an *entire system centered around high-performance learning* — encompassing the basic skills and workplace competencies delineated in the SCANS report, solid content in key academic disciplines, periodic assessments that measure student learning against world-class benchmarks, improvements in teaching and technology, and clear accountability for results.

II. The Price We're Paying

Educational standards are a bottom-line issue. This section examines some of the prices business is paying, both obvious and hidden, for an education system that lacks effective, world-class standards — and some of the gains we might make if strong standards truly guided education policy.

At the outset, it should be understood that companies willingly spend billions each year on routine training, keeping their workers abreast of the latest technologies and quality processes. Motorola spends $200 million annually on "continuous training and development"; Xerox spends $400 million on "continuous learning activities"; and DuPont estimates that training and development comprises 10 to 15 percent of each employee's time, or about $200 million per year for the corporation.[9] These are major outlays — but they're an indispensable part of doing business in our competitive age.

But if essential skills are in short supply, employers face "unpleasant choices," according to Peter Cappelli and K.C. O'Shaughnessy of the University of Pennsylvania: "First, they can compete with each other for the limited supply of workers with the requisite skills, bidding up their wages in the process. Second, they may look for substitutes for skill, such as capital in the form of automated work systems. Third, they may invest in the current workforce, training them to achieve the skill levels required."[10]

Re-Teaching the Basics

When employees lack a solid foundation in the basics, an increasing share of the training dollar must be devoted to *remedial* education — an expense business should not have to bear.

MCI spends about $75 million annually to keep its workforce ahead of the curve. But in 1995, about 10 percent of that total was spent on basic-skills remediation — according to John Zimmerman, consultant to the chairman, "providing the kind of fundamental knowledge and skills that should have been learned in school."[11] In the late 1980s, Polaroid spent $700,000 at its Cambridge, Massachusetts operation to teach basic English and math to 1,000 new and veteran employees. Motorola spends an annual average of $1,350 per employee for six basic skills courses, so that workers can handle routine

retraining." The American Management Association (AMA) estimated that in 1993, the average cost per trainee receiving remediation was $244."

Basic-skill deficiencies have led to an explosion in corporate-based remedial-education programs. According to AMA, only 4 percent of American businesses provided remedial training in 1989. By 1994, that figure had jumped to 20 percent." A similar survey for *Training* magazine found that in 1984, 18 percent of companies offered remedial training or some form of basic education; by 1995, 43 percent offered such make-up courses." (Strangely, this sudden acceleration in company-based remediation has happened precisely at a time when most conventional indicators of educational performance have held steady or advanced modestly — a vivid expression of the widening gap between school output and employer needs.)

No one figure captures the total cost of basic-skills problems, but the U.S. Department of Labor did estimate the effect of illiteracy on eight southeastern states in 1988, and found a huge impact: $31 billion in lost productivity, unrealized taxes, and social problems; $24.8 billion in lost time and substandard work; and $1.4 billion in unemployment claims, for a total cost of $57.2 billion."

Hidden Corporate Costs

Yet statistics about literacy and basic-skills remediation vastly understate the problem — partly because employers' notion of "basic" keeps ratcheting upward. The literacy problem facing business today is not that workers can't read a stop sign or write their own names; rather, it's that far too many lack more complex skills. The National Center for Education Statistics estimates that about 40 million Americans have trouble reading a newspaper or calculating a percentage — and when these problems meet up with Information Age technology, productivity suffers. Coors Brewing Co. CEO Peter Coors offers a telling example of the problem. When the firm shifted to a computerized inventory-control system in the early 1990s, many forklift operators — veteran employees — were unable to enter data into the computer. The company responded by opening an off-site literacy-training center."

Remedial programs are just the tip of the iceberg — the one obvious expense directly attributable to inadequate schooling. Other, more subtle costs have not been fully quantified at this point — nor can every dollar be directly traced to school failure. But educational underperformance is strongly implicated in a range of strategies companies are adopting to overcome skill shortages:

- **Moving jobs to where the skills are.** We know the role school reform played in the success stories (Nissan in Smyrna, Tennessee; Honda in Marysville, Ohio); for obvious reasons, we know a lot less about how poor school systems led employers to shy away from other communities.

- **Rewriting employee manuals to accommodate poor reading skills,** or purchasing simplified technology because employees lack the computer skills or analytical prowess to manage more sophisticated equipment.

- **Hiring additional supervisors to monitor front-line workers with shaky skills.** According to John Tobin of Siemens Corp., "We are paying for trainers, mentors, managers and supervisors because we are not yet able to empower some workers whose skills are so minimal that they require constant supervision, quality control checks, and redistribution of work."[1]

- **Taking more time for training.** The human resources director of one mid-sized company explained: "We just don't hire people without basic reading skills, but we are finding that a lot of entry-level people don't have good problem-solving skills. And in a business like ours, where customer service people have to make a lot of judgment calls, it takes longer to train people how to handle routine situations."[2]

- **Testing or screening hundreds or thousands of jobseekers to identify the few qualified applicants.** NYNEX had to test 60,000 applicants to fill 3,000 jobs.[3] Mead Corp.'s Michigan-based Publishing Paper division weeded through 1500 applicants to find 30 who could handle their demanding entrance requirements — "and if we'd needed 50, we'd have been hurting," according to Bill Van Kosky, manager of professional education.[4] The AMA noted that in 1993, companies paid an average of $13,000 each to test job applicants.[5]

- **Paying fees to temporary agencies that screen the applicant pool and deliver pre-trained candidates,** recruiting or advertising outside a local labor market, or supporting nonprofit groups to recruit and train workers.

- **Absorbing the cost of high turnover** by maintaining large personnel and legal staffs, paying for newspaper ads when jobs are re-posted, and paying overtime as current workers cover down time caused by absences.

Public-Sector Costs

All these are costs borne directly by companies. But corporate taxes also help support public education, to an extent which is sometimes overlooked. BankAmerica, for example, contributes $120 million annually to the California general fund. With 35 percent of that fund going to K-12 public education, BankAmerica estimates that its taxes directly support about 7200 children. That's three high schools or 15 elementary schools.[1]

But when schools don't do the job right the first time around, corporate taxes are spent on a variety of second-chance programs:

- Ohio taxpayers spent an estimated $32 million during the 1990-91 school year supporting college-level remedial programs, teaching students basic math and reading that they should have mastered in elementary and high school.[2]

- Sixty percent of students entering the huge California State University system score low enough on math and English placement tests that they are required to take a remedial course; typically, these were students who placed in the top one-third of California's graduating high-school class.[3]

- In all, about 13 percent of all college undergraduates, or 1.6 million students, took at least one remedial course in the 1992-93 school year. While some were recent immigrants and lacked only English-language proficiency, many had graduated high school insufficiently prepared to tackle higher education.[4]

Finally, although it is impossible to calculate exactly what proportion of welfare spending results from school failure — since a variety of other social and economic conditions contribute — a disproportionate number of AFDC (Aid to Families with Dependent Children) and Medicaid recipients lack the skills necessary to make their way in the job market.[5] The same is true of incarcerated youth. Better schooling cannot solve these problems alone, but an education system that keeps young people from dropping out and provides them with the means to make a living could save billions in the long run.

Case in point: It costs Colorado taxpayers $30,250 a year to send one youth to a juvenile facility. If the same youth stays in school, the per-capita cost is $6,400.[6]

A Word About Small Business

Large corporations may have the resources to absorb the costs of compensating for skill deficits, and many have apparently decided to do so. In 1993, a commission studying New York City's workforce reported that many New York-based corporations, no longer confident that the city's high school diploma guaranteed reliable skills, had tacitly accepted recruitment and screening costs as the price of doing business. But the commission cautioned: "Small and mid-sized businesses have fewer options. Unlike large employers, these businesses often cannot absorb the costs of a human resources staff or private employment agencies. Many must hire from the most accessible pool of applicants, regardless of whether these workers have the necessary skills."[1]

An Arthur Andersen survey shows that training investments are a major labor concern for many small and mid-sized employers,[2] and it's not difficult to see why. One study estimated that for firms with 100 to 300 employees, the out-of-pocket costs of "lifelong learning" programs may total $80,000 per company, excluding the value of management time and employee time required to attend the programs.[3]

For too many small businesses, a low-skill area workforce means lost orders and jobs. (And since small firms form the supply chain for larger employers, the effects of local school problems radiate throughout the economy.)

For employers both large and small, the array of hidden costs amounts to a "skills tax" — a growing burden that dilutes the availability of funds for capital investment and hampers companies' ability to create new jobs.

III. If We Aimed Higher...

What if American schools aimed higher? What if all American students were truly expected to achieve at world-class levels? What if we took more seriously the challenge of producing graduates with solid basic skills and mastery of a strong, well-rounded curriculum?

Of course, the most immediate beneficiaries of higher standards would be our young people themselves. Not only would better schooling strengthen their minds and broaden their perspectives, it would also vastly enhance their economic prospects, enabling more of them to succeed in college, compete for stable, career-path jobs, and earn the kind of wages and benefits needed to raise a family.

But world-class academic standards could also unlock a range of opportunities for American firms by providing them with internationally competitive workforces:

- The National Center on the Educational Quality of the Workforce (EQW) finds a bottom-line payoff from more advanced education. According to EQW: "A ten percent increase in the average education of all workers within an establishment (equivalent to slightly more than one additional year of schooling) is associated with an 8.6 percent increase in output for all industries." This human-capital investment compares favorably with such traditional productivity-boosters as longer work hours or investments in capital stock.

- Researchers at the Wharton School have identified a positive link between companies' business change strategies and worker skills such as basic math, English, communications, and teamwork. Firms whose workforces are skills-rich can purchase new technologies, sponsor employee-involvement programs, and embark upon other productivity enhancements.

- A study by MIT's Paul Osterman of nearly 700 U.S. manufacturers found that companies seeking a competitive edge place a high premium on flexible work practices, rewarding with better pay the employees whose skills are up to the challenge.

Growing the Market

Better-educated workers can certainly help companies compete — but over the long haul, their greatest impact on profitability may be as consumers. Since there is a clear correlation between better schooling and increased earning power, tougher educational standards may also be a key demand-side strategy for expanding domestic markets:

- The average college graduate makes about $20,000 more per year than the average high school dropout.[8] Over a lifetime of work, this represents about $800,000 more purchasing power per capita.

- In 1988, a UCLA study compared the direct costs of dismissing about 2000 teachers who had failed the new Texas teacher exam (roughly $78 million) against the long-term benefits of providing students with better instruction. Among the findings was a startling conclusion: that better teaching, resulting in fewer dropouts and more college attendance, would mean an aggregate lifetime earnings increase for those students of nearly $1.2 billion.[9]

The domestic market of the next century will be powered by consumer spending — and the future earning power of today's students is directly affected by the quality of their schools.

From Minimum Competency to High Standards

Unleashing the economic power of the next generation requires a critical change in the way we think about their education.

Without question, we've made remarkable progress in the sheer quantity of schooling provided. In 1910, fewer than 14 percent of adult Americans had finished high school, compared to 81 percent in 1994. Today, nearly a quarter of adult Americans have completed four years of college — nearly double the proportion in other industrialized countries.[10]

But along with this admirable record has emerged a "minimum-competency" mindset that threatens to deny today's graduates the future they've been promised. As Wisconsin Governor Tommy G. Thompson recently said, "We put them in robes, hold grand graduation ceremonies, play

'Pomp and Circumstance'... Yet, the only thing we are guaranteeing is that they completed at least a minimum number of high school courses. We know how long they sat in their seats, but we don't know what went into their heads."[6]

We must raise our sights. As too many first-time jobseekers are discovering, the minimum is no longer adequate: Just getting in the door requires demonstrated achievement these days. At Motorola, entry-level applicants are evaluated not just on reading and computation skills, but on teaming ability, visual acuity, communications skills, and ability to solve written math problems. According to education director Ed Bales, the company now looks for candidates who combine a strong academic record with other kinds of experiences (debate club, performing arts, sports) that cultivate multiple skill sets."

Moving beyond minimum competency also means abandoning the simplistic notion that preparation for work requires only a set of technical skills, while thoughtful citizenship requires knowledge and understanding cultivated by the arts and humanities. Perhaps this rigid dichotomy made sense in the Industrial Era, but no longer. Today's high-performance workplaces call not only for solid skills, but also for informed judgment, alertness to the needs of customers and co-workers, and a disposition toward teamwork. Employers now seek the Good Worker and the Good Citizen in the same individual.

How might a standards-based curriculum prepare students for this new world of work?

First, the core

In virtually every survey, employers list basic skills as the most essential aspect of workplace readiness. Today, those skills include not only reading, writing, and math, but familiarity with basic computing as well. The Business Coalition for Education Reform, representing employers from every sector of the economy, recently described how the curriculum must be grounded in these fundamentals:

> ***Our nation's and the states' academic standards must be built around the core skills, so that all subjects — English, foreign languages, the arts, mathematics, history, geography, science, civics, or economics — develop and reinforce the ability of students to think about and apply special-***

tized knowledge from the disciplines to the tasks they will encounter in their lives as workers and citizens.[c]

As the knowledge content of work grows, the intellectual skills nurtured by serious study become more critical. Consider how high-powered study in some traditional disciplines can enhance young people's readiness for today's job market:

Science

While scientific discoveries from genetics to lasers have ushered in a new age of innovation, business has not pushed nearly hard enough for high-quality, hands-on science programs in American schools. Yet consider the knowledge base required by new skill standards for some of the following jobs:

Maintenance Technician for Industrial Laundry:

"Understand basic principles of electricity, mechanical systems, and fluid power..."[d]

Hazardous Materials Management Technician:

"Identify and characterize hazardous wastes according to regulatory standards such as acute toxicity, corrosivity, ignitability, reactivity...."[e]

Automobile technician:

"The technician must be able to...demonstrate an understanding of the kinetic and potential energy relationships that occur in valve systems, ignition systems, and other stored energy systems, such as springs and fuels, and determine efficiency."[f]

Computer Aided Drafting and Design:

"Describe and explain light including angle of incidence and reflection, critical angle — fiber optics, diffraction, electromagnetic radiation, electromagnetic spectrum..."[g]

Bioscience industry worker:

"Describe the procedures you use to monitor product performance..." (Procedures listed include "Follow universal precautions for biological pathogens...Perform tests/assays: chemical, biological, clinical, environmental, robotic, mechanical..."[h]

A grasp of science and technology may be critical to timely commercialization of R&D innovations. According to DuPont's Human Resources VP Claibourne D. Smith, "If high-skill supervisors have to spend time handholding folks on the factory floor who are uncomfortable with new concepts, it can slow down the whole process of getting new products to market."[8]

Civics

Even when employers are satisfied with incoming employees' basic skills, they find themselves asking for something more — often calling it the "work ethic" or simply good character. Explicit civics education is a compass guiding students toward growth in these areas. In the new National Standards for Civics and Government, for example, there is a passage on the development of character traits, including "civility, respect for the rights of others, respect for law, honesty, persistence, [and] compassion..."[9] Such characteristics are as welcome, and as necessary, in the workplace as in the town hall or the public square.

Foreign Languages

Language snafus are no longer the stuff of cocktail-party humor — they've become a serious problem for American firms. In one recent example, Cheyenne Software, a Long-Island–based developer, ran into bottlenecks in getting products shipped to Japan. It turned out that the American workers doing the packing couldn't read the Japanese-labeled software. Rather than lose important customers, Cheyenne has moved its order-fulfillment operation to Japan and its distribution center to Singapore.[10]

If there's any doubt that foreign-language proficiency is a prerequisite for opening new markets — and prospering amid the diversity of today's domestic scene — consider the success of Language Line, an AT&T company launched in 1989, now providing simultaneous translation in 140 languages, with as many as 9000 connects per day. Co-founder Jeff Munks, who served as an advisor to the Standards for K-12 Foreign Language Instruction process, notes that Language Line helps "open a window" for companies doing business abroad. But he worries that schools simply aren't preparing the next generation of follow-on workers with sufficient language skills to make the most of the new opportunities.[11]

One executive quoted in a 1994 RAND study said, "The phrase 'home country' is losing its meaning."[13] That kind of world demands a fresh look at language preparation.

The Arts

Although the arts are seen by some as a "frill," they cultivate precisely the kinds of skills and attributes employers say they want in the high-performance workplace: teamwork, flexibility, motivation, and creativity. Not only do the arts build social skills, they also correlate with intellectual development as well: A review of 1995 Mean SAT scores shows that test-takers who had studied the arts four or more years scored 59 points higher on the verbal and 44 points higher on the math portions of the test than those with no arts coursework.[14] According to Ronn Robinson, company director of education affairs at Boeing Corp., "A substantive education in the arts enables students to understand and exploit the 'languages' used by technology to teach all subjects — still and moving images, music, voice, and other sounds that transcend the limits of literal text."[15]

There is new evidence that early exposure to music may actually help shape cognitive functions critical to later success in mathematics and other subjects. Researchers at the University of California-Irvine say that music "excites the inherent brain patterns and enhances their use in complex reasoning tasks."[16]

In sum, says Richard S. Gurin, CEO of Binney & Smith: "The abilities fostered by the arts and arts education — whether to see with a critical eye or bring old ideas into a new relationship — overlap with the skills needed to develop new technologies and negotiate business agreements."[17]

History

Lamenting the dismal results of a recent assessment of students' knowledge of American history, Lewis H. Lapham recently wrote that our schools "have lost the thread of the American narrative, and without that narrative the country cannot long sustain the appearance, much less the substance, of democratic self-government..."[18]

Quite apart from its essential role in providing continuity to our democratic traditions, study of history has a more utilitarian side as well, cultivating the

intellectual skills needed for sharp decisionmaking and informed problem-solving. According to the National Center for the Study of History, "Command of local and national history reveals the context of issues: connections are drawn, external conditions are revealed, the validity of special interests are scrutinized."* The student who has taken a rigorous course in world history will not only have an understanding of various cultures and civilizations — not a bad trait for doing business in emerging markets and increasingly diverse towns and cities at home — but will gain some important analytical tools: an understanding of cause and effect, a grasp of unintended consequences — and the ability to read a map.

Many paths

It should be stressed that learning this broad curriculum can be accomplished in many different ways, and that good schools investigate all sorts of paths toward high achievement. While some students love to immerse themselves in books, others benefit from more kinetic and visual technologies. For many students, embedding important lessons in applied curricula works best, enabling them to see how physics and math concepts play out in real-life work settings.

However they get there, schools must keep in mind the eventual goal of attaining high standards for all students. Encouragingly, the public at-large seems to understand and support the notion of a demanding, well-rounded curriculum. According to a recent Public Agenda survey, 92 percent say teaching the (traditional) basics is "absolutely essential"; 80 percent feel the same about computer skills; 63 percent add American history and geography to their essentials; and 59 percent include biology, physics, and chemistry.**

IV. Action Agenda: Standards-Based Reform

Plenty of school districts have "standards" on the books, but they're often set too low or ignored in practice — and not linked to effective strategies for improving performance.

As Richard L. Measelle, managing partner of Arthur Anderson & Co. notes, "[W]e need to go much further than raising the bar from two feet to three feet. A fundamentally different learning paradigm...requires a great change in the education system as a whole, one that will allow every child to learn at a much higher level."[27]

Here is a capsule summary of the themes that should be present in a standards-driven reform plan:

- ***Content standards*** in each area of the curriculum, reflecting the knowledge and skills needed for productive work and effective citizenship.
- ***Performance standards*** that spell out the level of mastery expected in each domain.
- ***Alignment*** of teaching, technology, administration, and other school processes with the goals and objectives laid out in the standards.
- ***Assessments*** that measure student achievement against world-class levels of excellence.
- ***Information*** aplenty — so that students, parents, educators, and elected officials know how students and schools are doing.
- ***Accountability*** for results: rewards for sucess and clear consequences for failure.

Strategies for Business Leaders

How can top executives help? Here are some suggestions drawn from the experience of those already fighting for high standards:

- ***Speak frankly*** about the wide and growing gap between what your firm needs and what schools are producing. Some leaders prefer to work with the educational establishment and others to confront it. In either case, it's essential that business leaders define their expectations, demand accountability, and ask the same kinds of tough questions as they would in the boardroom or the corner office.

- ***Do an audit*** of how much your company actually spends to make up for shortfalls in school-system performance. Can you persuade school boards and state legislators to use your tax receipts for true systemic change instead of reactive, patchwork solutions?

- ***Look at your organization chart*** to see who has responsibility for education policy in your company. Is education approached solely as a charitable or public-relations venture — or as a human-capital investment that demands CFO-level attention? Do your advocacy, training, finance, and philanthropy staffs work together around education policy questions?

- ***Review your giving program.*** Many corporations are moving to "strategic philanthropy," whereby their company's goals and charitable contributions are aligned — and nowhere is that tactic more justified than in education spending. Education grants currently account for nearly 40 percent of corporations' $6 billion annual giving.[11] They should support a vision as coherent, and a strategy just as demanding, as the dollars spent on technology, marketing, and plant capacity.

- ***Use your leverage.*** In a recent New York Times column, IBM Chairman Lou Gerstner suggested two steps businesses can take: "They can decide to locate in places where standards are instituted by states and local school districts. And they can make a point of using school transcripts as a factor in hiring."[12] (In fact, Fort Worth's "Vital Link" program already commits its member companies to do just that.)

- ***Use business principles to spur reform.*** Businesses that have reengineered have a wealth of experience to share with antiquated public-school bureaucracies. Business leaders can contribute strategic planning help, budget guidance, and savvy about integrated management systems and continuous improvement processes. They can also prompt administrators to try competitive contracting for delivery of services.

- ***Transfer knowledge.*** High school and community-college faculties often are urged to teach about fast-breaking technologies and new workplace skills — but never see the inside of a real business where those innovations are being developed. Bring teachers, principals, professors, and students onsite, whether through visits, seminars, or internships. You can't complain about the disconnect between school and work if you bar the door.

- ***Roll up your sleeves — for the long haul.*** According to a Brookings Institution study: "Although businesses have frequently lamented the quality of workers they receive from schools, few have ever worked closely with schools to define the skills and abilities that they are seeking in prospective workers."[3] Many states have adopted sweeping education reforms and are now developing more detailed curriculum and assessment regimes. This stage will determine what kids are actually taught, and what will constitute acceptable levels of performance. Business input is critical — and will continue to be so as skill demands grow. Encourage some of your best people to spend time on the nitty-gritty work of reform.

- ***Take heart.*** Remember that the great majority of parents, students, and taxpayers want action. As the Public Agenda Foundation put it, "Americans strongly and consistently support higher academic standards."[4]

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